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# 100kw-200kwh Solution Introduction For Germany

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# Kstar C&I all-in-one ESS Solution——KAC50DP-BC100DE



KAC50DP-BC100DE

## Highlights:

### Safe&Reliable

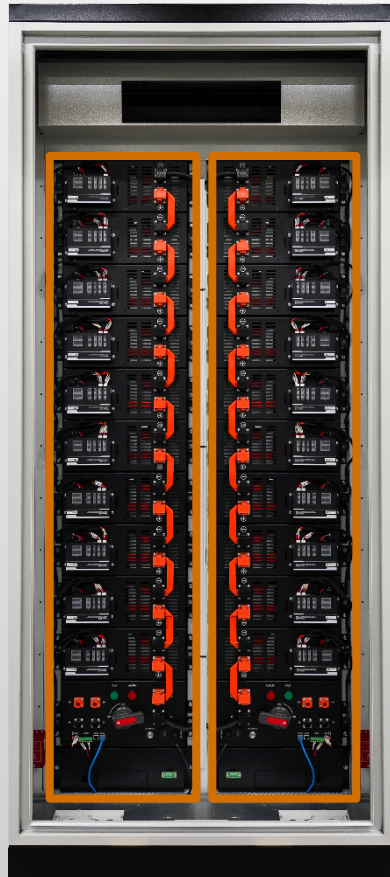
- CATL LFP battery cell
- Double fire suppression system design
- 1+1 redundancy design

### Simple&User-friendly

- Pre-installed in factory for easy installation on site
- Integrated EMS, suitable for various applications
- Effortless operation, cloud control

# Solution Description

Built-in EMS with could control interface , fitted with BMS of 1+1 redundancy design



➤ **1+1 redundancy design**

➤ **Better cooperation between BMS and EMS**

➤ **Quicker response with less communication distance**

➤ **Attentive protection function**

**User friendly EMS design with multiple work mode**

**7 inches EMS screen with simple operation**

**More reliable communication with less risks of external affects**

**Provide third party communication interface for upper level monitoring and control**



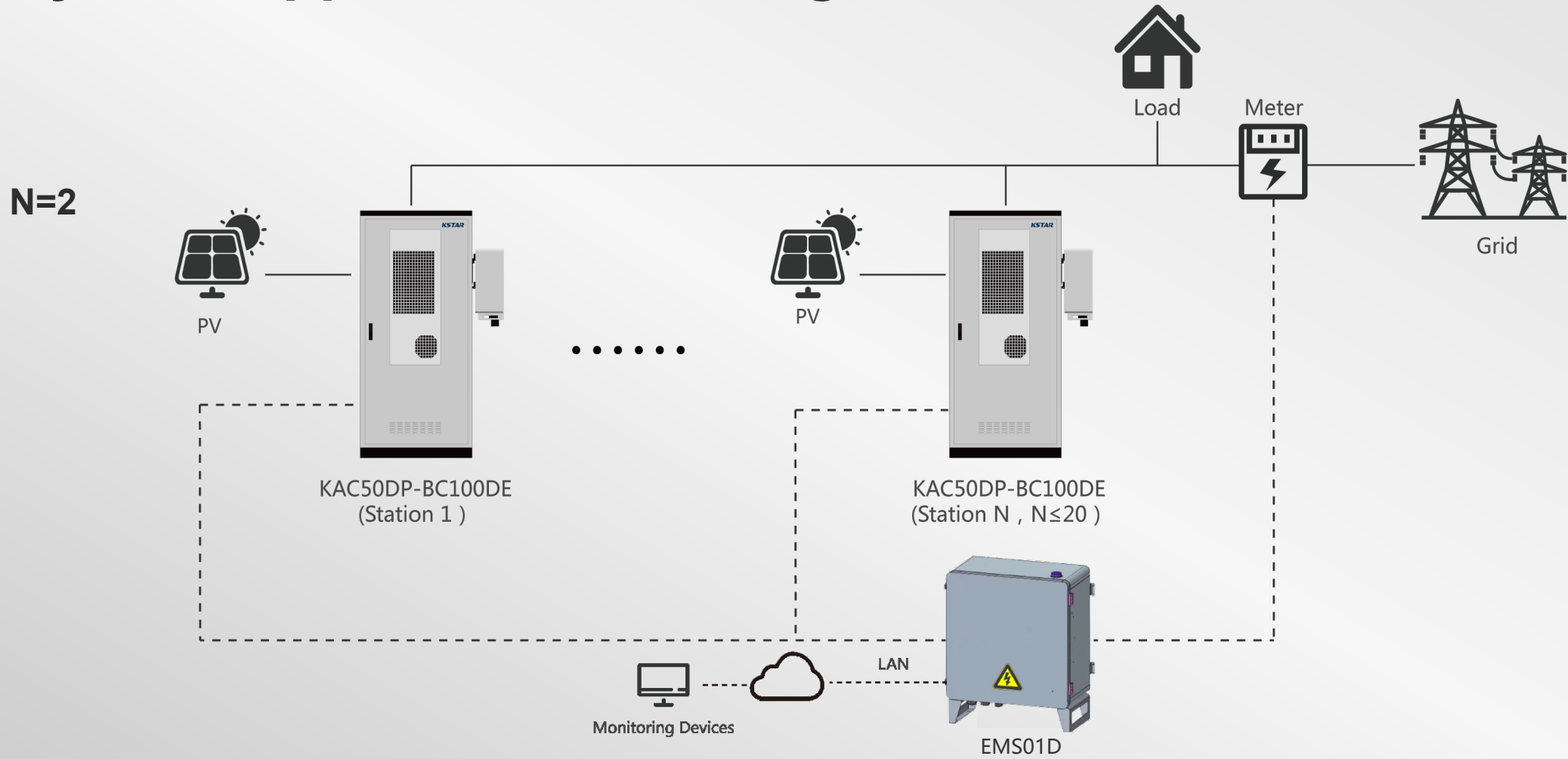
# Configuration information For on-grid parallel

Product	Model	Quantity	Price	Remarks
PCS	KAC50DP	2		50kw PCS(On-grid), Connection PV Max. 75kw
Battery	BC100DE	2		100kwh,LFP,2P10S
wires	\	2		Between PCS and BAT
EMS	EMS01D	1		Grid-connected Parallel
meter	YDS60-80	1		

**Total price:**



# System Application For On-grid Parallel



# Configuration information For off-grid parallel

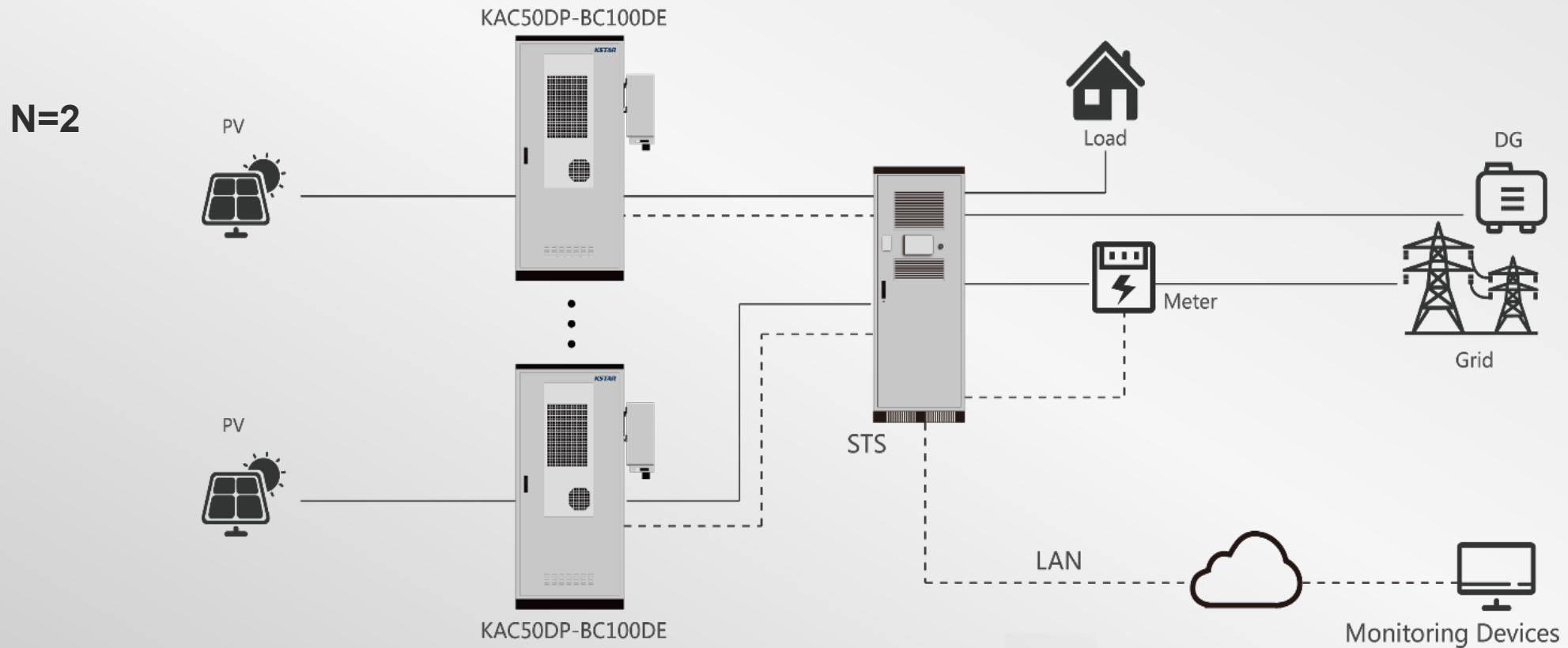
Product	Model	Quantity	Price	Remarks
PCS	KAC50DP	2		50kw PCS(On-grid and off-grid),Connection PV Max 75kw
Battery	BC100DE	2		100kwh,LFP,2P10S
STS	STS100D	1		Static Transformer System for switch
Wires	\	2		When selling PCS, BAT and STS, use wires with this material number.
meter	YDS60-80	1		

**Total price:**



# System Application For Off-grid Parallel

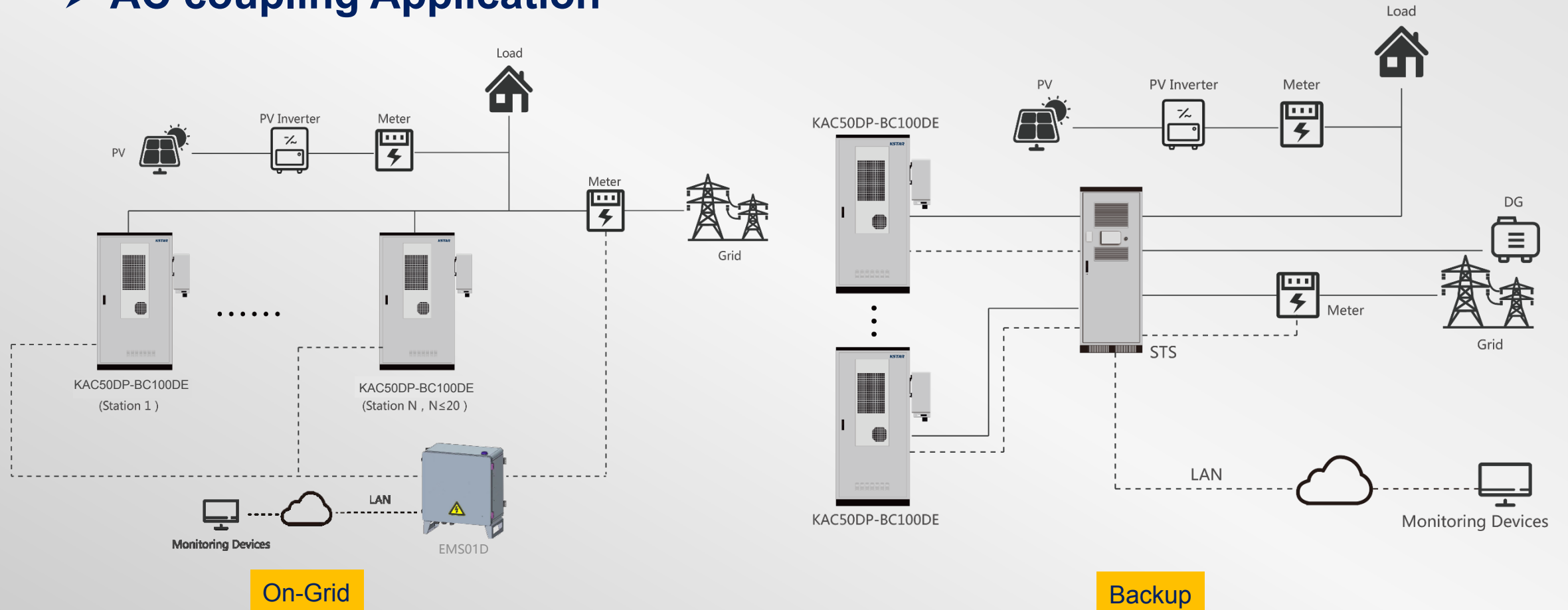
## ➤ Backup Application



The system capacity : **100kW/200KWH**

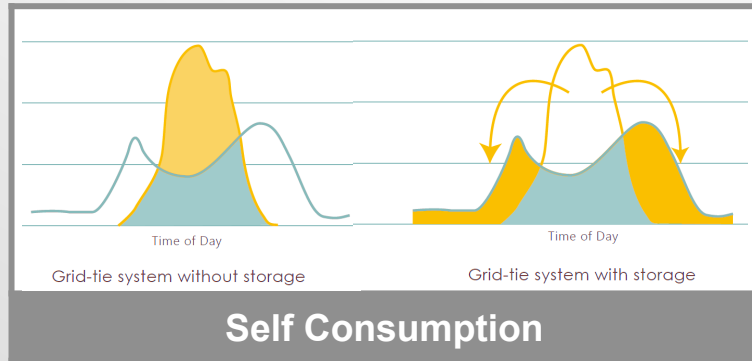
# System Application

## ➤ AC coupling Application



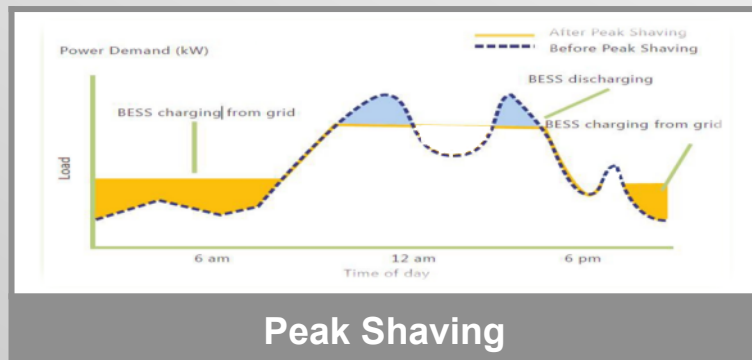
# Flexible work mode

ToU, Peak shaving, Self-consumption enabled by built-in local controller



**Strategy:** PV generation meets the demand of the loads in priority, and the excessive PV power will be stored for later use.

**Purpose:** Cut electricity bill by minimizing the energy consumption from the grid.

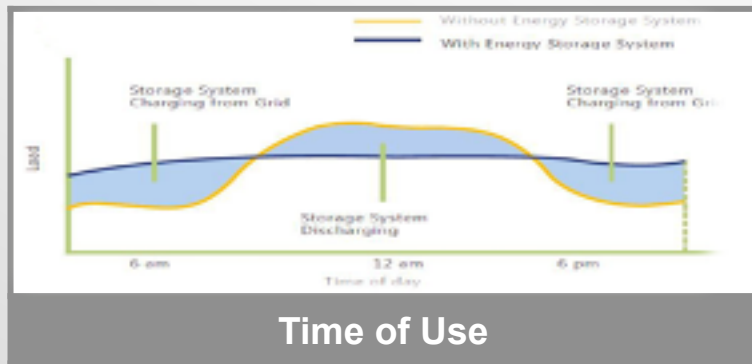


**Strategy:** When the power extracted from the grid falls outside the peak/valley range, the battery start to discharge/charge.

**Purpose:** Avoid extra charge caused by extreme high demand and make good use of power capacity contracted with DNO/DSO.

# Flexible work mode

ToU, Peak shaving, Self-consumption enabled by built-in local controller



**Strategy:** Preset a time schedule for the system to charge and discharge with selectable time range and power ratings


**Purpose:** Make good use of electricity arbitrage to minimize the unit electricity price

# BACKUP

Battery Priority

**Strategy:** PV generation and Grid meet the demand of battery charging; Battery discharges only after grid failure.

**Purpose:** Ensure the longer backup operation time and reliable power source.



**PART 03**  
**C&I ESS Highlights**  
Powering Green Future

# Technical feature overview

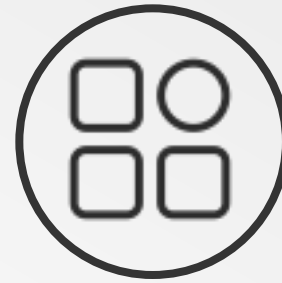
KAC50DP/BC100DE



**Safety**



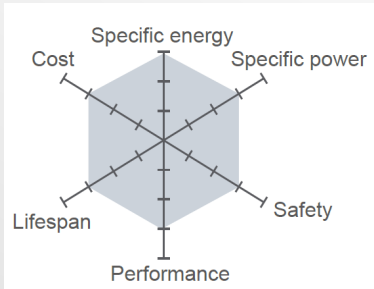
**User friendly**



**Multifunctional**

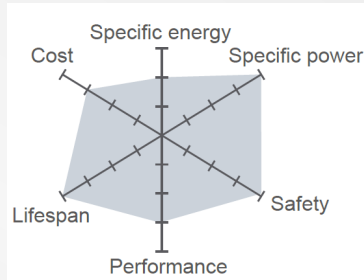
# Safety , Reliability, Long life of CATL Cell

## Safety 1



NCM

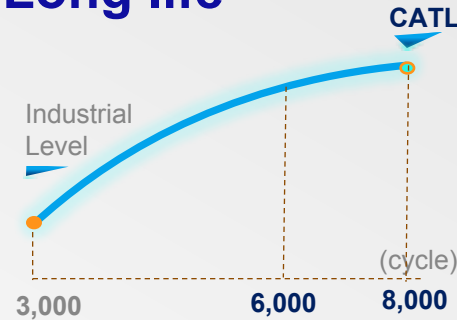
- Unstable crystal structure
- Thermal runaway temp.: 200°C



LFP

- Stable bond
- Thermal runaway temp.: 800°C
- Thermal runaway low temperature rise, no spark

## Long life

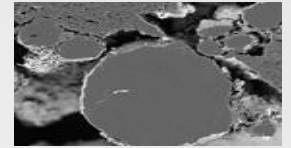


- CATL LFP battery with the cell life up to **10 years**, leads the battery industry.

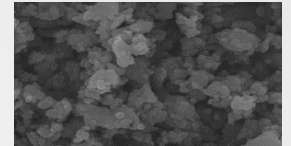
Optimizing anode/cathode/ electrolyte



Graphite With Self-healing Structure (Volume ED ≥ 350Wh/L)



Martia Coating



## Reliability



**Metal Prismatic**  
Lifespan: 20 years



**Polymer Pouch**  
Lifespan: 5 years



**Cylindrical**  
Lifespan: 5 years

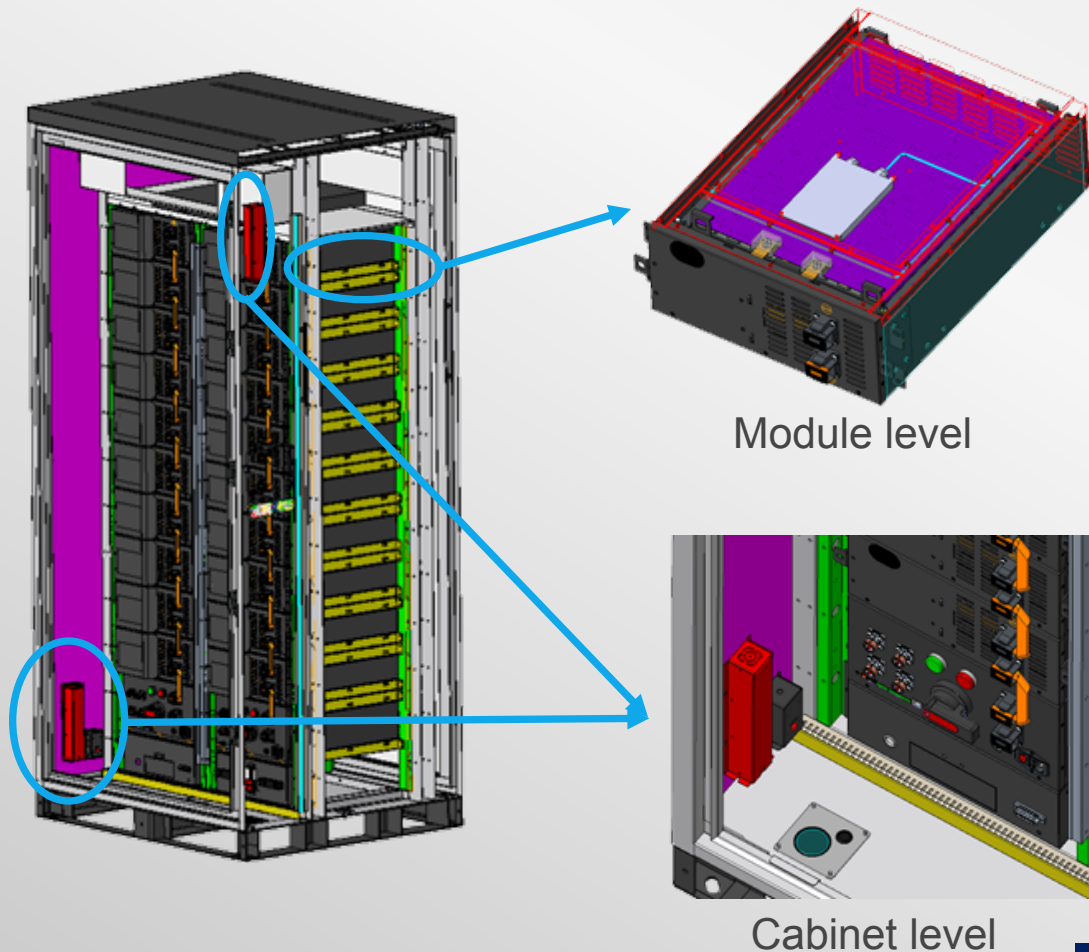


**Plastic Prismatic**  
Lifespan: 5 years

- Prismatic aluminum shell: no deformation, no leakage, directional gas release
- Aluminum-plastic shell: deformation, leakage, poor sealing, Uncontrollable vent hole
- Only the Metal Square cells with aluminum casing in all of its battery packs for long mechanical life-span and safety.

# Double Fire extinguishing system

Automatic and fast response fire extinguishing system on both module and cabinet level



## Module level

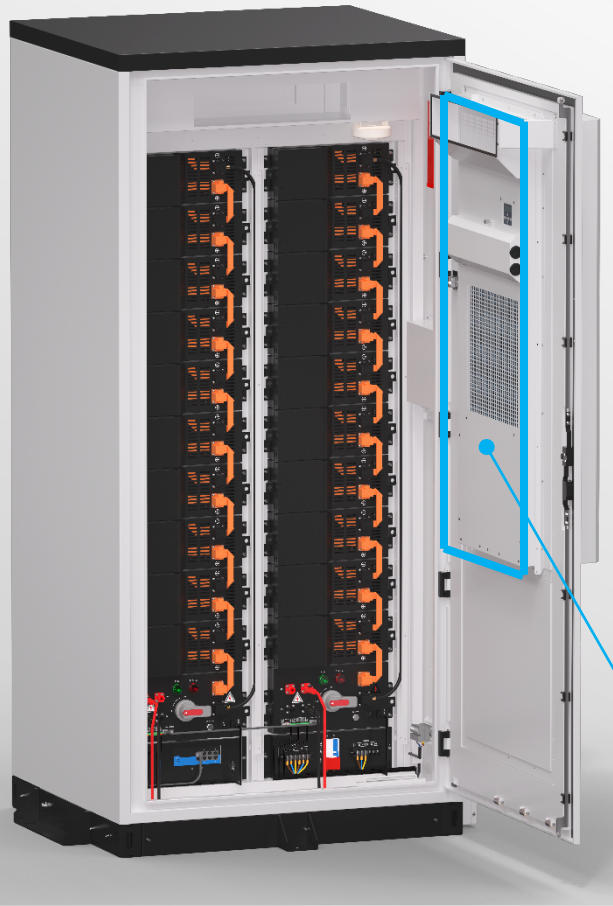
- ◆ Each module is fitted with efficient, environmentally friendly **aerosol** that is released when sensor detects abnormal temperature to minimize fire effects.

## Cabinet level

- ◆ The two corners of the battery cabinet are also placed in the **aerosol**, this dual fire extinguishing design makes the entire ESS safer.

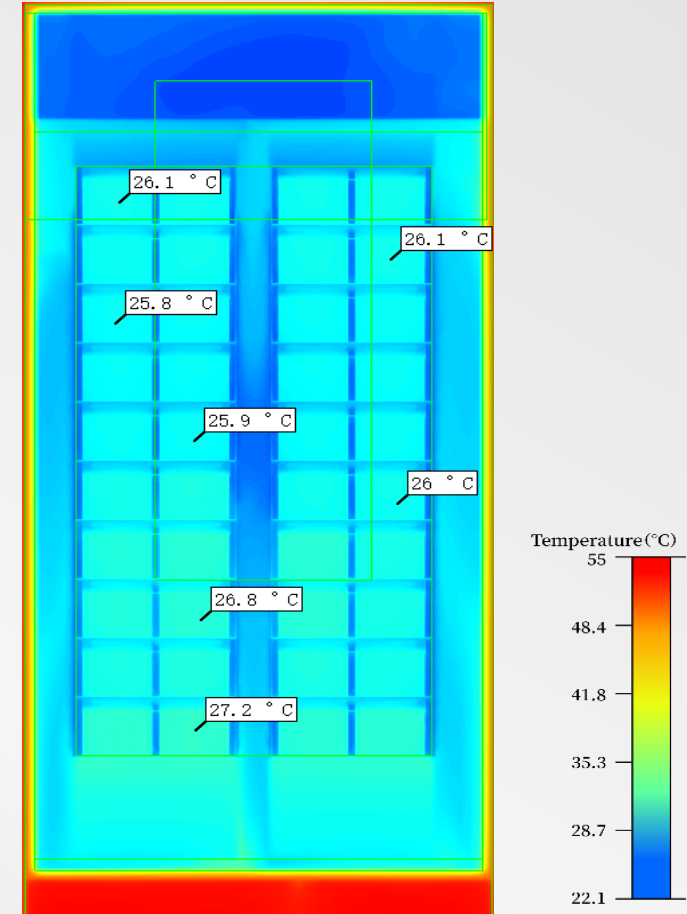
## Built-in HVAC system

High efficiency temperature and humidity management system for batteries' better performance



- Smart cooling with Tier 1 industrial air conditioning system
- Compact design with **wall mounted**
- Optimum wind path to ensure high cooling efficiency and low temperature difference(max. **<5 °C**)
- Enclosed cabinet for better HVAC performance

Air Condition



Ambient Temp: 55 degree Celsius

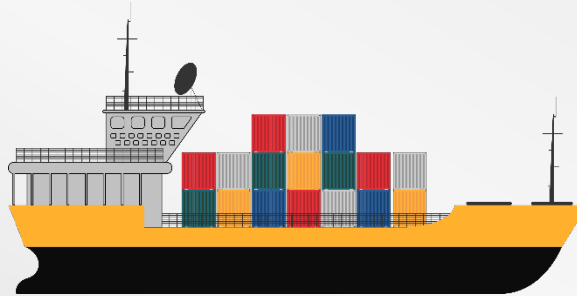
# Easy installation

*Factory*



- Pre-assembled in the factory

*Transportation*




- Container transportation

*Installation*



- Forklift transportation



**PART 04**  
**C&I ESS References**  
Powering Green Future

# Shanghai 50KW-100KWH Project

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## Location:

Shanghai World Expo Park

## Project overview :

This project is located in the Shanghai World Expo Park, China. This project is a **KAC50DP-BC100DE stand-alone operation.**

## Highlight:

- 1、 A single system is connected to the grid, and the mode of **peak shaving** is controlled by the built-in EMS.
- 2、 The system automatically adjusts the output power according to the load.



# England 50KW-100KWH Project

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## Location:

West Meadow Lane, Farwellshire, Cornwall, England

## Project overview:

This project is located in the West county of England, placed in a semi-outdoor space, the project is a **KAC50DP-BC100DE stand-alone operation.**

## Highlight:

- 1、 Based on the customer's existing grid-connected PV inverters, we provide customers **with AC-coupled, Self Consumption** working mode systems.
- 2、 Under self Consumption mode, customers begin to make profits in about 6 years.



# Ireland 100KW-200KWH Project

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## Location:

22 South Village, Dublin, Ireland

## Project overview:

This project is located in the south country of Dublin, Northern Ireland, and the user placed the ESS machine in the factory. The project scale is **two KAC50DP-BC100DE parallel** operation, both using Kstar products.

## Highlight:

- 1、**Two System, On grid, Parallel operation.**
- 2、 Under self Consumption working mode, customers began to make profits in about 4 years.





**PART 04**  
**C&I ESS Datasheet**  
Powering Green Future

## Certificate

- **Foundation certificate**

Environment 60068    EMC 61000    Efficiency 61683    Safety regulation 62109

Grid-connected & Isolated island 61727, 62116

- **National grid-connected certificate**

France grid-connected VDE-0126

European grid-connected 50549

Belgium grid-connected C10/110:2021

German grid-connected 4105

Poland grid-connected NfG

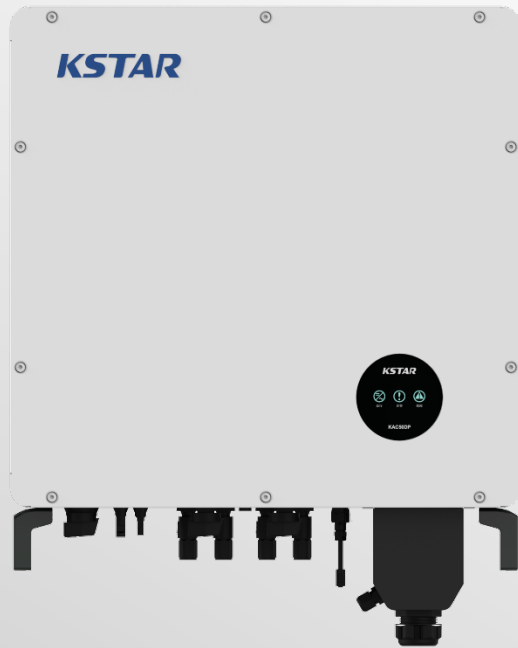
England grid-connected G99&G98

- **Listed certificate**

United Kingdom ENA

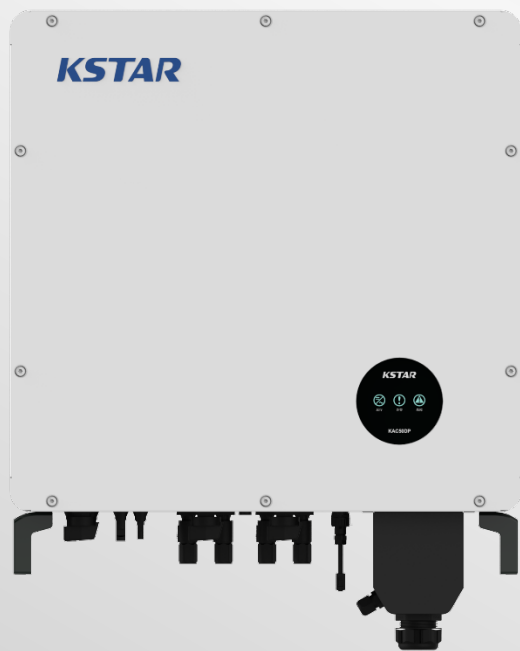
Green Power Denmark

# KSTAR 50kW modular hybrid power converter



KAC50DP	
PV Side	
Max. Input Voltage	1000V
MPPT Voltage Range	350V~800V
Max. Current per MPPT	36A
Number of MPPT	3
Number of Inputs Per MPPT	2
Battery Side	
Max. Input Voltage	750V
Min. Input Voltage	350V
DC Voltage at Nominal Operation	500V~750V
Max. DC Current	55A*2
Max. DC Input Power	55kW
Number of DC Inputs	2
AC Side(On Grid)	
Nominal AC Output Power	50kW
Max. AC Output Power	55kVA
Max. AC Current	80A
Nominal AC Voltage	400V
AC Voltage Range	50/60Hz±5Hz
Nominal Grid Frequency/Frequency Range	<3%(100% load)
THDv	-1(Lagging)~1(Leading)
Adjustable PF Range	340V~440V

# KSTAR 50kW modular hybrid power converter



KAC50DP	
<b>Efficiency</b>	
Max. Efficiency	97.5%
<b>Protection</b>	
Reverse Connection Protection	Yes
DC Switch	Yes
Over-Temperature Protection	Yes
Grid Monitoring/ Earthing Fault Detection	Yes
Insulation Monitoring	Yes
DC/AC Surge Protection	Yes
Reverse Connection Protection	DC Type II;AC Type III
<b>General Parameters</b>	
Dimensions(WxHxD)	650*715*325mm
Weight	75KG
Topology	Transformerless
IP Protection	IP65
Operation Temperature Range	-25~60°C (>45°C Derating)
Operation Humidity Range	0~100% (No Condensing)
Cooling Method	Intelligent Air Cooling
Max. Operation Altitude	3000m
Communication Port	RS485/CAN
Standards	IEC62477;IEC61000;CE;GB/T;IEC62109;IEC61683;IEC60068;IEC61727;IEC62116;EN50549;VDE4105;G99

# KSTAR 100kWh outdoor battery cabinet



Technical Parameters	BC100DE
Battery type	LFP
Battery module capacity	5.12kWh
Number of modules	10*2
Total battery capacity	102.4kWh
Nominal voltage	512V
Operating voltage range	448V~565V
Charge/Discharge rate	Max. 0.5C
DoD	90%
General Parameter	BC100DE
Dimensions(WxDxH)	1100 x 1100 x2380 mm
Weight	<1.5T
Installation site	Outdoor
IP protection	IP54
Anti corrosion level	C4
Operation humidity	5%~95% (No condensing)
Operation temperature	-30° C~+50° C
Max. operation altitude	4000m (>3000m derating)
Communication port	Ethernet;CAN
Communication protocol	CAN;MODBUS TCP/IP
Cooling method	Air conditioner
Standards	IEC62619-2017;UN38.3;IEC61000-6-2/4